THE RECOVERY KERNEL

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[illegible]: ΔFosB [illegible], [illegible]-[illegible]-[illegible] [illegible]-[illegible], [illegible], [illegible] - [illegible]

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"Recovery Kernel" [illegible]:

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- [illegible] - [illegible], [illegible], [illegible]
- AUTHOR/SYSTEM EXPERIENCE — [illegible]; [illegible], [illegible]
- [illegible]/[illegible] - [illegible]
- NOT ESTABLISHED — [illegible], [illegible]

1. ΔFosB [illegible] — [illegible]:

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Cannabis (THC)	CB1 □□□□□□□□, VTA □□□□□□□□□ □□□□□□□□□□ □□ □□□□□□□□□□□ □□□□□□□ □□ □□ □□□□□ □□□□	□□□□□□-□□□□□□	□□□□□□ □□□□
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GHB	GABA-B □□□□□□□□□; □□□□□□□□□ □□ □□□□□□□ □□□□□□□□□□□ □□ □□□□□□□□□□□□□ □□□□□ □□□□□	□□□□□□-□□□□□□	□□□□□□ □□□□.
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[illegible] / [illegible]	[illegible] ΔFosB [illegible]	[illegible].	[illegible]
	[illegible]	[illegible])।	
Mephedrone (4-MMC)	Combined DAT/NET/SERT [illegible]-[illegible], [illegible].	[illegible] - [illegible]-[illegible]	[illegible]
Methedrone (bk-PMMA / 4-MeO-methcathinone)	Structurally [illegible]-[illegible]; SERT [illegible], [illegible], [illegible] DAT [illegible]	[illegible] — [illegible], [illegible]	[illegible]/[illegible] - [illegible], [illegible]
[illegible]/[illegible]/[illegible]	[illegible], [illegible]-[illegible]	[illegible], [illegible]	[illegible] ([illegible], [illegible]-[illegible])।
[illegible] / [illegible]	[illegible]/[illegible], [illegible] ([illegible]) [illegible] (ΔFosB) [illegible]	Moderate.	[illegible]

[illegible] ΔFosB [illegible]; [illegible], [illegible]

3. [illegible] - [illegible].

ΔFosB [illegible]-[illegible] **-**[illegible], [illegible]-[illegible]

[illegible]	[illegible], [illegible]	[illegible]	[illegible]
[illegible]	[illegible] ΔFosB [illegible]; [illegible]	[illegible]	[illegible] ([illegible])
[illegible]	[illegible]-[illegible] CK2-[illegible], [illegible]-[illegible] ΔFosB [illegible], [illegible]	[illegible]-[illegible], [illegible]	[illegible] ([illegible])

[illegible]	[illegible], [illegible]	[illegible]	[illegible]
[illegible]	[illegible]-[illegible], [illegible], [illegible]	[illegible] 2-4 [illegible]-[illegible]; [illegible]/[illegible]	[illegible] ([illegible], [illegible]-[illegible])
mRNA [illegible], [illegible]	[illegible] FOSB [illegible] - [illegible].	24-48 [illegible]	[illegible] ([illegible])
[illegible]	Pre-existing [illegible] ΔFosB [illegible]-[illegible], [illegible]	[illegible]; [illegible], [illegible]	[illegible] ([illegible])[illegible]
[illegible] / [illegible]	[illegible] ([illegible] 4 [illegible]) [illegible]	[illegible] ΔFosB [illegible], [illegible]	[illegible]

[illegible]: ΔFosB [illegible] - [illegible] - [illegible], [illegible], [illegible]

4. [illegible].

[[illegible]] ([illegible])

[illegible] ΔFosB [illegible], [illegible]—[illegible]-[illegible], [illegible] ΔFosB [illegible]

- [illegible], [illegible] - [illegible] c-fos - ΔFosB, [illegible] AP-1 [illegible] 1 (HDAC1) [illegible] HDAC1 [illegible]-[illegible] (H3K9) [illegible], [illegible] - [illegible] ΔFosB [illegible]
- [illegible], [illegible]: CDK5, AMPA [illegible] GluA2 (GRIA2), [illegible] ARC — ΔFosB, BRG1 [illegible], [illegible] SWI/SNF [illegible]-[illegible] BRG1 [illegible], [illegible]

[illegible], [illegible]

[illegible]: [illegible] "[illegible]" [illegible], [illegible], [illegible], [illegible] - [illegible], [illegible]-[illegible] [illegible], [illegible] - [illegible] "[illegible]" [illegible], [illegible] 8 [illegible] 10 [illegible]

5. [illegible] — [illegible]

[illegible] 2 [illegible] ΔFosB [illegible] - [illegible], [illegible]-[illegible] "[illegible]," [illegible], [illegible]-[illegible], [illegible] ΔFosB [illegible] - [illegible], [illegible], [illegible]-[illegible] ([illegible]/[illegible], [illegible]-[illegible]) [illegible]

[illegible]: **ΔFosB** [illegible], [illegible].

[illegible] 2 [illegible], [illegible], [illegible]

[illegible]	[illegible]	**ΔFosB [illegible]**	[illegible]
[illegible] ([illegible] [illegible]2 [illegible], [illegible]).	[illegible] 2 [illegible], [illegible] [illegible]2 [illegible]	[illegible], ΔFosB-[illegible] AP-1 [illegible] - [illegible], [illegible]	[illegible] ([illegible])
[illegible] ([illegible], [illegible])	Same DAT/NET mechanism as illicit methamphetamine ([illegible] 2).	[illegible] - [illegible] ([illegible], [illegible]-[illegible], [illegible]) [illegible], [illegible], [illegible]	[illegible] — [illegible], [illegible]
[illegible] ([illegible], [illegible]).	[illegible]-[illegible] ([illegible] 2).	[illegible] "[illegible]" [illegible]: [illegible]-[illegible]-[illegible]-[illegible], [illegible] OAT [illegible], [illegible]-[illegible]	[illegible] - [illegible], [illegible]

[illegible]	[illegible]	ΔFosB [illegible]	[illegible]
		[illegible], [illegible]	
[illegible] ([illegible], [illegible])[illegible]	GABA-A [illegible], [illegible] 2 [illegible] "[illegible]" [illegible].	[illegible] - [illegible] GABA-A [illegible]/[illegible], [illegible] ΔFosB [illegible]	[illegible].
SSRIs / SNRIs	[illegible] 2 [illegible] - [illegible]/[illegible]	[illegible] ΔFosB [illegible], [illegible], [illegible]-[illegible] "[illegible]" [illegible] ([illegible] 12) [illegible], [illegible], [illegible]-[illegible] ΔFosB [illegible]	[illegible] ([illegible]); [illegible] ([illegible], [illegible])[illegible]

[illegible], [illegible], [illegible], [illegible], [illegible], [illegible] - [illegible] - [illegible] ΔFosB [illegible], [illegible], [illegible]

[illegible]

[illegible] ΔFosB [illegible], [illegible], [illegible] - [illegible]/[illegible], [illegible]/[illegible] ([illegible] 6, [illegible] 4) - [illegible] ΔFosB [illegible]

[illegible]	[illegible]	Plausible Link to ΔFosB
P5P ([illegible]-5'-[illegible] — [illegible] B6)	AADC ([illegible] L-DOPA [illegible] 5-HTP [illegible]) [illegible] ([illegible] GABA [illegible]) [illegible] B6 [illegible] B6 [illegible] GABA [illegible]	[illegible] D1/PKA/CREB [illegible], [illegible] FOSB [illegible] ([illegible] 6, [illegible] 3) - [illegible], [illegible] [[illegible], [illegible]]

[illegible]	[illegible]	Plausible Link to ΔFosB
R5P (Riboflavin-5'-Phosphate — [illegible] B2 / FMN)	[illegible] MTHFR (C677T [illegible]) [illegible] FAD-[illegible]) [illegible] MAOA [illegible]	ΔFosB [illegible] MTHFR [illegible] MAOA [illegible] ΔFosB [illegible] ([illegible] 6, [illegible] 4)। [[illegible]]
[illegible]	[illegible] ([illegible] NMDA [illegible]-[illegible])। NMDA [illegible]-[illegible] CaMKII [illegible]	CaMKII [illegible] CK2 [illegible] CK2 [illegible] ΔFosB [illegible] Ser27 [illegible] ([illegible] 1)। [illegible] ΔFosB [illegible] [[illegible]]

[illegible]: [illegible] 3 [illegible] ΔFosB [illegible] - । [illegible], GABA [illegible]-[illegible]

6. [illegible] - [illegible]

ΔFosB [illegible] ([illegible]) [illegible] ([illegible]) [illegible] - [illegible]

[illegible] 1 — FOSB [illegible], [illegible]

[illegible] - [illegible]

Variant.	[illegible]:	[illegible]	[illegible]
FOSB Ser27Ala (S27A)	[illegible] 27 [illegible] — CK2 [illegible]	[illegible]; [illegible]-[illegible], [illegible] ΔFosB [illegible]	[illegible] ([illegible], [illegible])
FOSB Ser27Glu (S27E) — [illegible].	[illegible] - [illegible]	[illegible]: [illegible] CK2 [illegible]; [illegible]	[illegible] ([illegible], [illegible])
FOSB [illegible]-4/[illegible]-4 [illegible]-[illegible]	PCBP1/SMAD3 [illegible]	[illegible]-[illegible] FosB [illegible] degron [illegible]	[illegible] ([illegible])

Variant.	□□ □□□□ □□□□ □□:	□□□□□□□□□□ □□ □□□□□□□□	□□□□□□
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CSNK2A1 / CSNK2B (CK2 □□□□□□□□□□ □□ □□□□□□ □□□□□□□□□□)	Encode the kinase that phosphorylates ΔFosB at Ser27.	□□□ □□□ CK2 □□□□□□□ ΔFosB □□ □□□□ □□□□□□□□□□□, □□□□ □□□□□□□□□ □□□□□ □□□ □□□□ □□□□ □□ - □□□□□□ □□□□ □□ □□□□□□□□ □□□□ □□□	□□□□□□□ (□□□, □□□□□□□□)
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ACVR1B (ALK4 □□□□□□□□)	SMAD3/PCBP1 □□□□□□□□□□ □□□□□□□□□□ □□ □□□ □□□□□ □□□□□□□, □□ □□□□□□□□ D1 □□□□□□□□□ □□ □□□ □□□□□□ □□□□ □□□	□□□□□□□ □□□□□□□□□ □□ □□□□ ΔFosB □□ □□ □□□□□□□□□□ □□□ □□□□□ □□ □□ □□□□ □□, □□ □□□□ □□□□□ □□ □□ □□□□□□□□□□ □□□□ □□□	□□□□□ □□□ (□□□, □□□□□□□□)

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CHRNB2 rs2072661	□□ 3' □□□□□□ (UTR) □□□□□□□□, □□ □□ □□□□□□□□□□ □□□□□□□□ □□□□□□□ □□□ □□□ □□□□ □□□□ □□, □□ □□ □□□□ □□□□□□□□ □□□ □□□□□□□ □□ □□ □□ □□□□□□□ □□ relapse □□ □□□□□ □□ □□□□□ □□□	□□ □□□□□□□□□□ □□ □□ □□□□□□□□□□□□ □□□□□□□□ □□□□□ □□ □□□□□□□□□□ □□□□□□□ □□ □□□□ □□□, □□□□□ □□□□□□□□□□□ □□□ □□ ΔFosB □□□□□□□□ □□□□□□□□ □□ □□□□	□□□□□ □□□ — □□□□□□ □□□□ □□□□□□□□ □□ □□□□□□□□ □□ □□□□□□□ □□ □□□□□□□□□□□□ □□ □□□□□ □□, □ □□ ΔFosB □□; ΔFosB □□□□□ □□ □□□□□□ □□, □□□ □□□□□

[illegible] / [illegible]	[illegible].	[illegible] ΔFosB [illegible].	[illegible] — [illegible]
DBH rs1541333	[illegible]-[illegible], [illegible]	[illegible]/[illegible], [illegible] ΔFosB [illegible].	[illegible] — [illegible]: [illegible], [illegible] ΔFosB [illegible]

[illegible] 4 — [illegible]

[illegible] (23andMe-[illegible], [illegible] "[illegible]" [illegible]) [illegible] - [illegible], [illegible]-[illegible], ΔFosB [illegible]

[illegible]	[illegible]	[illegible] ΔFosB [illegible]
COMT	[illegible]/[illegible], [illegible] Val/Val = [illegible]; Met/Met = [illegible].	[illegible] [[illegible]/[illegible]]
MTHFR	[illegible]	[illegible] ΔFosB [illegible] [[illegible]]
OPRM1 (A118G)	[illegible]-[illegible]	[illegible]; ΔFosB [illegible] [[illegible]]
GABRA2	GABA-A [illegible]; [illegible]	[illegible] [[illegible]]
FAAH (C385A)	[illegible]; [illegible]-[illegible]	[illegible] [[illegible]]
MAOA	[illegible], [illegible]	[illegible], [illegible] [[illegible]/[illegible]]
SLC6A4 (5-HTTLPR)	[illegible]; [illegible]	[illegible] ΔFosB [illegible] [[illegible]]
ALDH2	[illegible]; [illegible] ([illegible]) [illegible]	[illegible], [illegible] ΔFosB [illegible] [[illegible]/[illegible], [illegible]]
CYP2D6, CYP3A4, CYP2C19, CYP1A2, CYP2C9, CYP2B6	[illegible]	[illegible], [illegible] ΔFosB [illegible]-[illegible] [[illegible]/[illegible], [illegible]]
HNMT	[illegible]	[illegible] ΔFosB [illegible]

[illegible]	[illegible]	[illegible] **ΔFosB** [illegible]
		[illegible]

[illegible] ΔFosB [illegible] - [illegible] FOSB [illegible] 2 [illegible] (CK2, PCBP1, SMAD3, ACVR1B) [illegible], [illegible] abstinence [illegible], [illegible] - [illegible]-[illegible], [illegible], [illegible], [illegible]

7. [illegible] - [illegible]?

[illegible] ([illegible])[illegible]

[illegible]-[illegible] ([illegible] 23andMe-[illegible], [illegible]) [illegible]-[illegible] - [illegible] Tier 3 [illegible] Tier 4 [illegible] FOSB [illegible], [illegible] Tier 1 [illegible], [illegible]; [illegible].

[illegible] (WGBS).

[[illegible]] [illegible]

WGBS [illegible] - [illegible] - [illegible]-[illegible] ([illegible] "WGBS 30x" [illegible], [illegible] 30 [illegible]) [illegible] Sequencing.com [illegible] WGBS-30x [illegible]-[illegible], [illegible]

[illegible] "[illegible]" [illegible] ([illegible]), [illegible]-[illegible]: [illegible], [illegible] ΔFosB-[illegible] - [illegible] 4 [illegible] HDAC1/BRG1 [illegible], [illegible] WGBS [illegible], [illegible]-[illegible]; [illegible] ΔFosB [illegible], [illegible]

WGBS [illegible], [illegible]

[illegible] "ΔFosB [illegible]" [illegible]

8. [illegible]-[illegible]

[illegible]/[illegible]], [illegible]

[illegible] "[illegible]" [illegible] - [illegible]

- [illegible] 2 [illegible], ΔFosB [illegible]—[illegible]—[illegible]-[illegible] (DAT [illegible], [illegible]-[illegible], GABA-A [illegible], [illegible])। [illegible]-[illegible]; [illegible], [illegible]
- Stacked chromatin remodeling. [illegible] ΔFosB [illegible], [illegible], [illegible] addiction [illegible]-[illegible] chromatin remodeling [illegible] ([illegible] 4) [illegible], [illegible], [illegible]
- [illegible], [illegible]-[illegible]-[illegible], [illegible], [illegible] ΔFosB-[illegible] - [illegible], [illegible]

[illegible] - Recovery Kernel [illegible]-[illegible] ([illegible] 3 [illegible]-[illegible]) [illegible], [illegible]

[illegible] - [illegible] ([illegible], [illegible], GHB)

"[illegible]" [illegible] - [illegible], [illegible] ("[illegible]") [illegible], [illegible] GHB/GBL [illegible], [illegible]-[illegible] MDMA [illegible] - [illegible], [illegible], [illegible]

[illegible]	ΔFosB [illegible] ([illegible] 2 [illegible])।	[illegible]
[illegible]	[illegible]	[illegible] - DAT/NET [illegible], [illegible]
Mephedrone /	High.	[illegible]-[illegible], [illegible]-[illegible]

[illegible]	**ΔFosB [illegible] ([illegible] 2 [illegible])[illegible]**	**[illegible]**
[illegible] ("[illegible]")		[illegible], [illegible]
GHB / GBL	[illegible]-[illegible]	[illegible] ΔFosB [illegible] — [illegible], [illegible] ([illegible]), [illegible]-[illegible]

[illegible], [illegible] ΔFosB [illegible] - [illegible]-[illegible]:

- [illegible] ([illegible] 8) — [illegible], [illegible], [illegible]

[illegible] [illegible] ΔFosB [illegible], [illegible] (Pitchers et al., 2010, [illegible] ΔFosB [illegible]) [illegible], [illegible] ΔFosB [illegible] - [illegible], [illegible], [illegible]; [illegible]-[illegible]

- [illegible]-[illegible], "[illegible]" [illegible], [illegible]-[illegible], [illegible] 12 [illegible], [illegible], [illegible] "[illegible]" [illegible], [illegible]-[illegible]

GHB/GBL [illegible], [illegible] ΔFosB [illegible]-[illegible]: [illegible], [illegible] GABA [illegible], [illegible], [illegible] GHB/GBL [illegible] - [illegible].

[illegible], [illegible], [illegible]-[illegible] (PTSD) [illegible], [illegible], GHB/GBL [illegible], [illegible]-[illegible] ΔFosB [illegible], [illegible]; [illegible]

10. [illegible], "[illegible]", [illegible]

[illegible], [illegible], [illegible]: [illegible] - [illegible] "[illegible]," [illegible] "[illegible]," [illegible] "[illegible]" [illegible] - [illegible], [illegible], [illegible]-[illegible], [illegible], [illegible]

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